# Software Release Notes

MS-013563-001
*Rev. Y, May 2019*

## CH-721 Control Head

SK-011241-001 R7G

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## MANUAL REVISION HISTORY

| REV | DATE | REASON FOR CHANGE |
|---|---|---|
| - | Sep/07 | Initial release. |
| A | Dec/07 | Added support for Siren, Light, Keymap download, and Public Address; and resolved TRs. |
| B | Jun/08 | Added MRU settings of max and min alert tones, external hook switch functionality, OTP keymap setup through serial port, and resolved TRs. |
| C | Dec/08 | Enhancement of Public Address audio quality, enable button backlight all the time, and resolved TRs. Uses new LoadApp for flash compatibility. |
| D | Jul/09 | Reformatting for Harris; no software changes. |
| E | Oct/09 | External speaker support and resolved TRs. |
| F | Dec/09 | Resolve TRs. |
| G | May/10 | Resolve TRs. |
| H | Jun/10 | Resolved TRs. |
| J | Aug/10 | Resolve TRs. |
| K | Sep/11 | Resolve TRs. |
| L | Mar/12 | Resolve TRs. |
| M | May/12 | Resolve TRs. |
| N | Oct/12 | Support for new features and resolved TRs |
| P | Jun/13 | Resolve TRs. |
| R | Oct/13 | Added support for XG-75M. |
| T | Jul/14 | Resolve TRs. |
| U | Apr/15 | Resolve TR. |
| V | Oct/15 | Resolved TRs. |
| W | Mar/17 | Resolved TRs. |
| Y | May/19 | Resolved TR. |

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# 1. SAFETY CONVENTIONS

The following conventions may be used in this manual to alert the user to general safety precautions that must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Harris assumes no liability for the customer's failure to comply with these standards.

The **CAUTION** symbol calls attention to an operating procedure, practice, or the like, which, if not performed correctly or adhered to, could result in a risk of danger, damage to the equipment, or severely degrade the equipment performance.

The **NOTE** symbol calls attention to supplemental information, which may improve system performance or clarify a process or procedure.

# 2. INTRODUCTION

This document contains the Software Release Notes for the CH-721 Control Head software, SK-011241-001, Revision R7G. The table below describes the CH-721 Distribution Kit:

| DISTRIBUTION KIT NUMBER | MEDIA INCLUDED IN DISTRIBUTION KIT | MEDIA KIT NUMBER (VERSION) |
|---|---|---|
| ST-011241-001 | CH-721 Control Head | SK-011241-001 (R7G) |

# 3. COMPATIBILITY

The table below shows the minimum version of software that is compatible with this release:

| PLATFORM | SOFTWARE VERSION(S) |
|---|---|
| Radio Personality Manager (RPM) | R11A or later. |
| Radio Personality Manager 2 (RPM2) | R3A or later |
| CH-721 AppBurn | R01A01 |
| CH-721 BurnApp | R03A02 |
| ECP/XGP | R16F12 or later |
| OTP | R19H26 or later |
| MCU | R03.01 |

NOTE

This version of software was not tested with older versions of code for the products listed. Harris does not guarantee operation with software versions earlier than those listed.

# 4. FEATURES

## 4.1 NEW FEATURES

No new features were added with this release of software. See Section 6 for a description of issues resolved in this release.

## 4.2 FEATURE NOT SUPPORTED

Over-the-air CH-721 Programming is not supported in EDACS®, Conventional, and P25.

# 5. INSTALLATION PROCEDURES

## 5.1 CH-721 FILES

The CH-721 control head code is bundled on a CD-ROM with a total of 11 files. The files are:

- AppBurnR01A01.a00: Latest version of App Burn for the CH-721.
- BurnAppR03A02.a00: Latest version of Burn App for the CH-721.
- ch721_serial_upload.exe: Serial bus upload executable.
- CH721_upgrade.doc: Upgrade “How To” document.
- loadapp.txt: LoadApp text file,
- loadapp_R12B05.exe: LoadApp upload executable.
- CANUploadMainApp.bat: File used to load compressed CH-721 code into radio.
- MainAppR07F16.a00: Latest version of CH-721 Main Application.
- MainAppR07F16.cmp: Compressed CH-721 code stored within radio.
- SuploadBurnApp.bat: Batch file used to load the latest Burn Application into the CH-721.
- SuploadMainApp.bat: Batch file used to load the latest Main Application into the CH-721.

For a successful software upgrade of the control head using the CAN upload Batch File, the upgrade software version must be later than the current software version in the CH-721 Flash.

If more than one CH-721 is connected to a single radio, only upgrade a single CH-721 at a time. When the first unit completes, power it off. Then power on the second unit to complete its upgrade.

## 5.2 CH-721 UPGRADE PROCEDURE

### 5.2.1 Upgrading the CH-721 with the Latest BurnApp

Perform the following to upgrade the CH-721 to the latest version of BurnApp:

1. For a Front or Remote Mount CH-721, connect the front mic programming cable (CA-103541-001) to the microphone port on the CH-721.
2. For a Remote Mount CH-721, connect a serial cable directly to the back of the CH-721.
3. Through the DB9 connector from the back of the radio, connect one end of the serial cable to the radio and the other to the PC.
4. Start a Terminal Application on the COM Port that is connected to the Radio. Send the "atz-1" command to put the radio into BurnApp Mode.
5. Unzip the included zip file to a new directory on your PC, e.g., **C:\721_Upgrade**.
6. Run the ***SUploadBurnApp.bat*** file:
   a. A DOS dialog box will appear and the display on the CH-721 should show "**SER Downld**."
   b. The download process can take from 3 to 5 minutes.
   c. You are currently downloading the latest Burn Application **R03A01** into the CH-721.

For OTP mode: The Burn Application is used in OTP mode when an over-the-air download of CH-721 code is requested.

7. When the download is complete, the DOS dialog box will prompt the user to upgrade the Main App as well. Answer "Y" and the Main App will be updated to R07G for this release.

If the Burn App failed to load, answer "N" to the Main App question and attempt to load the CH Burn App again. There may be a setup issue that needs to be resolved. The batch file does not verify that the Burn App load was successful.

### 5.2.2 CH-721 Upgrade Procedure using CAN Upload Batch File (ECP Applications)

Perform the following to upgrade the CH-721 software to the latest version using the CANUploadMainApp.bat:

1. Unzip the included zip file to a new directory on your PC, e.g., **C:\721_Upgrade**.
2. Connect a serial cable to the back DB9 Connector of the radio.
3. Start a terminal session on your PC (Hyperterminal, TeraTerm, etc.).
4. Connect to COM port with the following settings:

| | |
|---|---|
| Bits per second | 19200 |
| Data Bits | 8 |
| Parity | None |
| Stop Bits | 1 |
| Flow Control | None |

5. Put the radio into BurnApp mode by sending the **atz-1** command to the radio from your terminal session window.
6. Run the ***CANUploadMainApp.bat*** file available in the release package. (CANUploadMainApp will request the desired COM Port Number.)
7. Once this completes programming the radio, the radio remains in BurnApp mode.
8. Restart a Terminal Application on the COM Port that is connected to the radio. Send the **atz-1** command to restart the radio into the BurnApp. This uploads the latest version of CH-721 Control Unit Software from the Radio Flash to the CH-721 Control Unit. This takes about 30 seconds per Control Unit.
9. Reboot the radio to ECP/XGP Mode by sending an **atz15** command.
10. The version number can be checked from an entry in the Revision Menu Option. The CH-721 should display the latest version. Control Unit software versions can also be verified by starting a Terminal Program on the COM Port attached to the radio and sending an **ATI3** Command to the radio.

11. If using a CS-7000 Desktop Station only, perform the following:

    The CS-7000 Desktop Station should have both of its Software Version Text Boxes on the Software Tab of its Radio Configuration Web Page set to "7E7E." (Information for accessing the CS-7000 Desktop Station Configuration Web Pages is documented in MM-014714-001.) If this process is not followed, the CS-7000 Desktop Station may appear to fail to start while the radio errantly attempts to program CH-721 Control Unit Software into the CS-7000 Desktop Station's Remote Control Board.

12. This completes the CH-721 Control Unit Update Process. It is good practice to power cycle the radio and all Remote Mount Control Units after updating the Control Unit's software.

### 5.2.3 Upgrading Multiple CH-721 Control Heads with the Latest MainApp using CAN Upload Batch File (ECP Applications)

Perform the following to upgrade more than one control head connected to a single radio:

1. Switch ON only one control head connected to the radio while the remaining connected control heads are switched OFF.
2. Follow the procedure in Section 5.2.2 to upgrade a single control head.
3. Once the single control head upgrade is complete, switch OFF the upgraded control head and Switch ON the second (next) control head you intend to upgrade.
4. Restart a Terminal Application on the COM Port that is connected to the radio.
5. Put the radio into BurnApp mode by sending the **atz-1** command to the radio from your terminal session window, since the latest software already resides in the radio flash.
6. The connected CH-721 automatically gets upgraded to the latest software.
7. The version number can be checked from an entry in the Revision Menu Option; the CH-721 should display the latest version. Control Unit software versions can also be verified by starting a Terminal Program on the COM Port attached to the radio and sending an **at13** command to the radio.
8. To upgrade additional control heads, follow steps 3 through 8 above.
9. Restart the radio and all the connected control heads.

### 5.2.4 Upgrading the CH-721 with the Latest MainApp using the Serial Upload Batch File through the CH-721 Control Head (either using the Front Mic Port or DB9 on the Back)

Perform the following to upgrade the CH-721 to the latest version(s) of code:

1. Unzip the included zip file to a new directory on your PC, e.g., **C:\721_Upgrade**.
2. Connect a standard Windows PC Serial Cable to the back DB9 connector of the CH-721 control unit or a CA-103541-001 Front Mic Programming Cable to the Front Microphone Connector on the CH-721 unit.
3. Connect the other end of the programming Serial Cable to a COMM port (preferably to a true COMM1 port) either from the PC or coming from the docking station.
4. Connect a serial cable to the back DB9 connector of the radio.
5. Start a terminal session on your PC (Hyperterminal, TeraTerm, etc.).
6. Connect to COM port with the following settings:

| | |
|---|---|
| Bits per second | 19200 |
| Data Bits | 8 |
| Parity | None |
| Stop Bits | 1 |
| Flow Control | None |

7. Put the radio into BurnApp mode by sending the **atz-1** command to the radio from your terminal session window. This reset will prematurely terminate the Control Unit Update Process while the Control Unit is being updated.
8. Power up the CH-721 while pressing both the "A" and "B" buttons. The CH-721 should display "SER Downld, Please Wait." The CH-721 is in CH Program Mode.
9. Run the ***SuploadMainApp.bat*** file. A DOS dialog box will appear and the display on the CH-721 will show **Loading**. (SuploadMainApp will also request a COM Port; enter the COMM port number that is connected to the back of the CH-721.) The download process can take from 3 to 5 minutes. This downloads the latest CH-721 Main Application R07F16 into the CH-721.
10. Once the download is complete, power cycle the CH-721.
11. If using a CS-7000 Desktop Station, the Serial Load Method of updating CH-721 Control Unit software does not require modifications to the CS-7000 Desktop Station Configuration Web Pages.

12. This completes the CH-721 Control Unit Update Process. The updated Control Unit should restart and automatically rejoin the radio's CAN Bus and start in the radio's current Application Mode. It is good practice to power cycle the radio and all Remote Mount Control Units after updating the Control Unit's software.

### 5.2.5 Upgrading the CH-721 with the Latest MainApp using CAN Upload Batch File (OTP Applications)

Performing the following will flash the latest version of CH-721 MainApp into flash memory of the mobile radio. Currently, a mobile radio in OTP mode polls the release code version of the CH-721 connected to it on every power up. If the mobile radio detects that it has CH-721 code in flash memory newer than the CH-721 attached to it, then the radio will upgrade the CH-721 code in the CH-721. If a user ever installs a different CH-721 control head into the vehicle, then the radio will attempt to place the latest CH-721 MainApp code into the control head.

Performing the following does not upgrade the BurnApp in the CH-721. To upgrade the BurnApp, perform the instructions listed in Section 5.2.2.

To flash the latest version of CH-721 MainApp into the M7200, M5300, M7300, or XG-75M radios, perform the following:

1. Unzip the included zip file to a new directory on your PC, e.g., **C:\721_Upgrade**.
2. Connect a serial cable to the back DB9 connector of the radio.
3. Start a terminal session on your pc (Hyperterminal, TeraTerm, etc.).
4. Connect to COM port 1 with the following settings:

| | |
|---|---|
| Bits per second | 19200 |
| Data Bits | 8 |
| Parity | None |
| Stop Bits | 1 |
| Flow Control | None |

5. Put the radio into the BurnApp mode by sending the **atz-1** command to the radio from your terminal session window.
6. Run the CANUploadMainApp.bat file available the release package. (CANUploadMainApp will request the desired COM Port Number.)

CANUploadMainApp will automatically sense an "on line" radio and change the radio to "Off Line" to allow radio programming if the radio is programmed for the default Escape Sequence ("+++"). If the radio does not use the default Escape Sequence and the radio is currently "On Line" and connected to an OpenSky® System, then a Terminal Application must be started, and the proper Escape Sequence must be manually sent to the radio to change the radio to "Off Line" before exiting the Terminal Application and running CANUploadMainApp.

7. Once CANUploadMainApp completes programming the radio, the radio remains in BurnApp mode.

8. Restart a Terminal Application on the COM Port that is connected to the radio. Send an "atz-9" command to restart the radio in OTP Application Mode. This uploads the latest version of CH-721 Control Unit Software from the Radio Flash to the CH-721 Control Units. This takes about 30 Seconds per Control Unit.

9. Control Unit software versions can also be verified by starting a Terminal Program on the COM Port attached to the radio and sending an **ATI5** command to the radio.

The radio must be “Off Line” to respond to the **ATI5** command.

10. A CS-7000 Desktop Station may need to have both of its Software Version Text Boxes on the Software Tab of its Radio Configuration Web Page set to "7E7E." (Information for accessing the CS-7000 Desktop Station Configuration Web Pages is documented in MM-014714-001.) If this process is not followed, the CS-7000 Desktop Station may appear to fail to start while the radio errantly attempts to program CH-721 Control Unit software into the CS-7000 Desktop Station's Remote Control Board.

This procedure is not required for OTP R20C06 and later versions of OTP software.

11. This completes the CH-721 Control Unit Update Process. It is good practice to power cycle the radio and all Remote Mount Control Units after updating the Control Unit's software.

# 6. PROBLEM RESOLUTION

The following issue was resolved with this release of software:

| REFERENCE NUMBER | DESCRIPTION |
|---|---|
| PROD00177073 | Using an XG-75M ICI radio, CH-721s are intermittently going into NO/LOST MRU and staying there until a power-cycle. M7300/XG-100M do not have this issue. |

# 7. TECHNICAL SUPPORT

Harris' Technical Assistance Center (TAC) resources are available to help you with overall system operation, maintenance, upgrades, and product support. TAC is your point of contact when you need technical questions answered.

Product specialists, with detailed knowledge of product operation, maintenance, and repair, provide technical support via a toll-free telephone number (in North America). Support is also available through mail, fax, and e-mail.

For more information about technical assistance services, contact your sales representative, or call the Technical Assistance Center directly at:

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